

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In Re Application of: **Charles R. Rapier et al.**

Appl. No. : **10/706,645**

Confirmation No. : **7027**

Filed : **November 12, 2003**

Examiner : **Paul A. Wartalowicz**

Docket No.: **1856-42801 (40183)**

TC/A.U. : **1754**

Customer No.: **31889**

For: **Stabilized Alumina Supports, Catalysts Made Therefrom, and Their Use In Partial Oxidation**

REPLY BRIEF UNDER 37 C.F.R. § 41.41

Mail Stop Appeal Brief – Patents

Date: **February 27, 2008**

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

This *Reply Brief* is responsive to the *Examiner's Answer* mailed on December 27, 2007. Appellants offer the following remarks in reply hereto.

Rejections under 35 U.S.C. 112, Second Paragraph

The Examiner stated (*Examiner's Answer*, page 2, section 6) that the grounds of rejection to be reviewed on appeal is correct as stated by Appellants' *Appeal Brief* of September 27, 2007. But yet the Examiner has reiterated (*Examiner's Answer*, page 3) word for word the rejection of Claim 40 based on 35 U.S.C. 112 ¶2 from the *Final Office Action* of November 28, 2006. Appellants thought that the 112, 2nd Paragraph rejection on Claim 40 was previously addressed by Appellants (see Appellants' Response to Final Office Action dated January 29, 2007 (Section II in the Remarks Section) and was withdrawn in the *Advisory Action* of February 27, 2007 (see in PTOL-303, item No. 5 under Amendment).

Thus, based on the prosecution record, the restatement of the rejection based 35 U.S.C. 112 ¶2 rejection in the *Examiner's Answer* is confusing.

Appellants assume that the reiteration of this 35 U.S.C. 112 ¶2 rejection must be a clerical error and thus do not need to again address it in this reply, since Appellants successfully overcame this rejection in the *Response* of January 29, 2007.

If Appellants err in making such assumption, the Examiner is respectfully requested to clarify the difference between the 35 U.S.C. 112 ¶2 rejection on this claim contained in the *Examiner's Answer* and that previously addressed and overcome by Appellants.

Rejections under 35 U.S.C. 103 (a)

The Examiner has reiterated (see *Examiner's Answer*, pages 4-9) word for word the three rejections based on 35 U.S.C. 103(a) from the *Final Office Action* of November 28, 2006 (except for the correction from 102(b) to 103(a) on page 4 and the explaining sentence bridging pages 5 and 6). It is still not clear to Appellants why there are two 103(a) rejections based on the same three references: *McCarty* (U.S. Patent 6,015,285) in view of *Deckman* (U.S. Patent 6,830,596) and *Yamashita* (U.S. Patent 4,906,176), which divide the claims into two subsets: Claims 1, 3-7, 9-11, 13-17, 19-25 (see *Examiner's Answer*, page 4) and Claims 2, 8, 18, 40-49, 76-77, 80-81, 83-90 (see *Examiner's Answer*, page 6) when the cores of both rejections seem to be identical. Thus, Appellants have addressed these two rejections as lumped into one rejection under 35 U.S.C. 103 (a) over the combination of the three cited references.

In rejecting Claims 1-9, 11, 13, 16-25, 40, 42-49, 76-77, 80-81 and 83-90 under 35 U.S.C. 103 (a) as being unpatentable over *McCarty* in view of *Deckman*, and *Yamashita*, and further in rejecting Claim 12 under 35 U.S.C. 103 (a) as being unpatentable over *McCarty* in view of *Deckman* and *Yamashita*, and further in view of *Kato* (U.S. Patent 4,793,797), the Examiner has made finding of fact not supported by a reasonable interpretation of the cited references.

For the teaching of alumina in alpha and/or theta form in the support, the Examiner has reiterated (see *Examiner's Answer* Page 4 on the 3rd and 4th lines from the bottom of page) that *McCarty* teaches the limitation wherein the hexaaluminate and alpha-alumina or theta alumina comprises a support. But yet when Appellants pointed out the incorrectness of this fact finding from *McCarty* in the *Appeal Brief* of September 27, 2007 (see pages 13 & 14), the Examiner discounted the Appellants' argument and explained that *McCarty* was not relied upon for this

particular teaching (see *Examiner's Answer* Page 10, 1st paragraph). There is no explanation from the Examiner regarding this inconsistency.

Since it is not clear what reference has been relied upon for the teaching of the alumina component (in alpha and/or theta form) in the catalyst support, Appellants have presumed that *Deckman* was relied upon by the Examiner for this teaching (*Examiner's Answer*, Page 5 lines 6-8 and page 6 lines 18-20), and that *Yamashita* was relied upon by the Examiner for the content of less than 20% in alpha-alumina in a support (*Examiner's Answer*, Page 5 lines 13-16 and Page 7 lines 3-6).

Thus, the Examiner appears to rely on *Deckman* to provide the combination of a rare earth aluminate perovskite component, a rare earth hexaaluminate component, and an alpha and/or theta alumina component in a catalyst support. The Examiner contends that *Deckman* (col. 6, lines 24-37) teaches that "it is known for supports to be combinations of perovskite, hexaaluminate and stabilized alumina" (*Final Office Action*, page 5, lines 15-17; *Examiner's Answer*, page 5 lines 6-8 and page 6 lines 18-20).

Appellants believe that the threshold issues in this appeal are as follows:

- *whether Deckman reasonably conveys to the artisan the teaching of a high-temperature stable catalyst support comprising the combination of alumina (in an alpha form, a theta form, or both), a rare earth hexaaluminate and a rare earth aluminate perovskite, and further*
- *whether there is sufficient guidance from the references themselves and a plausible reason articulated by McCarty to pick such combination of alumina (in an alpha form, a theta form, or both), rare earth hexaaluminate and rare earth aluminate perovskite, and to use it as the support of McCarty's combustion catalyst.*

THE COMBINATION OF THE REFERENCES CITED BY THE EXAMINER DOES NOT PROVIDE ALL OF THE ELEMENTS RECITED IN THE CATALYST SUPPORT

Appellants are aware of the case law based on *In re Keller*, 642 F. 2d 413, 208 USPQ 871 (CCPA 1981), which the Examiner appears to repetitively apply in the *Examiner's Answer* to remind Appellants that one cannot show nonobviousness by attacking the references individually.

Appellants submit however that the nonobviousness / obviousness determination is based on factual findings, and when a rejection is believed to be based on one or more erroneous factual findings from one reference, it is to Appellants' prerogative to point out these errors in that particular reference and to correct the misinterpretations of the teachings of the reference itself in order to properly assess the facts.

Appellants have previously argued (*Appeal Brief*, pages 12-18) that the reliance on *Deckman* by the Examiner for the combination of perovskites and hexaaluminates in supports in col. 3, lines 50-55 & col. 6, lines 24-37 is faulty. It is believed that the point upon which the Examiner is relying upon in a teaching reference should be clearly disclosed, and this is not the case here.

For the teaching regarding the hydrogen combustion catalyst in *Deckman* col. 6, Appellants have previously explained that *Deckman* does not disclose combinations of perovskites and hexaaluminates (*Appeal Brief*, page 15 and 1st paragraph on page 16). Since the Examiner does not disagree with Appellants' argument in the Response to Arguments section of the *Examiner's Answer*, the Examiner appears to have conceded to Appellants' correction in this fact finding.

Thus, it appears that the remaining teaching from *Deckman* which is relied upon by the Examiner for the combinations of the three components of the catalyst support is based on the disclosure in *Deckman*, col. 3 lines 50-55, which is reproduced below.

“...Suitable membrane *materials* are ceramics such as alumina and zirconia silicon carbide, silicon nitride, or combinations thereof, including for example, Al₂O₃, ZrO₂, MgO, TiO₂, La₂O₃, SiO₂, perovskites, hexaaluminates, and metals such as nickel and high nickel content alloys, and cermets.”

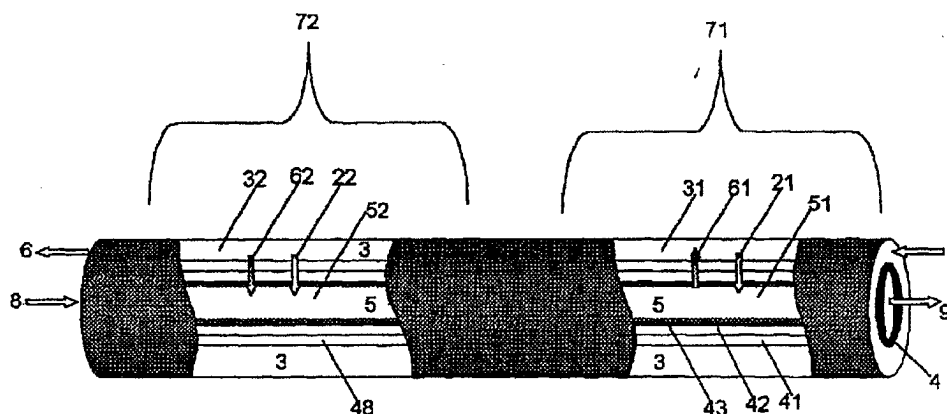
[*Deckman*, col. 3, lines 50-53, emphasis added in italic]

As can be seen from this disclosure, *Deckman* generically discloses the use of ‘alumina’ as a suitable membrane material, but does not specifically point to alpha-alumina or theta-alumina as a suitable component of a catalyst support. Additionally, *Deckman* generically discloses the use of ‘perovskites’ and ‘hexaaluminates’ as suitable membrane materials, but does not specifically point to a rare earth aluminate perovskite or a rare earth hexaaluminate as components of a catalyst support.

Since the materials in this passage are not listed as suitable 'support' for a catalyst in the membrane composition, Appellants have tried to understand the meaning of *Deckman* Col. 3 lines 50-55 in the context of the overall teachings concerning a catalyst support composition. Appellants have found some clarification in *Deckman* col. 4 lines 17-51 which is located soon after *Deckman* col. 3, lines 50-55 and which covers the disclosure of materials which can be used as a porous support in the permselective membrane.

As previously stated by Appellants (*Appeal Brief*, page 17 line 9 to page 18 line 18), the passage in *Deckman* (in col. 4, lines 33-38) corroborates Appellants' interpretation of the lack of teaching in *Deckman* of the combination of these materials in a catalyst support. The passage in *Deckman*, col. 4 lines 17-51 describes the composition of a layered asymmetric membrane illustrated by *Deckman*'s FIG. 1 (reproduced below), in which the membrane (4) is comprised of catalyst (41,48), porous support (42), and permselective layer (43), stacked over each other in that order, and the catalyst (41,48) is deposited on porous support (42).

Figure 1



In this disclosure, *Deckman* divided the materials that are listed in col. 3, lines 50-53 into two subsets of materials based on different functions: a first subset which lists suitable materials

for a catalyst support (*Deckman* col. 4, lines 27-30), and a second subset which lists suitable materials for hydrogen selective permeation (*Deckman* col. 4, lines 43-48).

“[m]aterials that can be used for supports include alumina, zirconia, silicon carbide, and porous metals such as porous steel, nickel and alloys such as Hasteloy.”

(*Deckman* col. 4, lines 27-30),

“[t]he thin selective diffusion layer may comprise a thin film of metal such as nickel, or ferrous alloys or inorganic materials such as alumina, zirconia, yttrium stabilized zirconia, silicon carbide, silicon nitride, perovskites and hexaaluminates ranging in thickness from about 100 angstroms to 500 microns.”

(*Deckman* col. 4, lines 43-48).

Because porous support (42) in *Deckman* is sandwiched between catalytic layer (41, 48) and thin selective diffusion layer (43), the thin selective diffusion layer (43) - which may be a thin film of perovskites or a thin film of hexaaluminates or a thin film of alumina - does NOT function as a support for the catalytic layer (41, 48). Thus, it is apparent that, contrary to the Examiner's assertions, *Deckman* does not disclose perovskites, hexaaluminates, or combinations thereof as suitable materials for supporting the catalytic layer (41, 48); rather these materials are selected for forming the thin selective diffusion layer, presumably for their hydrogen permeance property which is mentioned in *Deckman* in Col. 3 lines 47-50.

Appellants believe that *Deckman*, when taken as a whole vis-à-vis the composition of catalyst support in either the hydrogen catalyst or in the permselective membrane, does not teach nor envision a support comprising a combination of alpha-alumina and/or theta-alumina, a rare earth aluminate perovskite and a rare earth hexaaluminate.

However, in the *Examiner's Answer* (page 11 lines 9-13), the Examiner rebutted the clarification presented by Appellants, and discounted this teaching from *Deckman* concerning the different subsets of materials in the membrane with different functions “as being merely a preferred embodiment”. However, it is the same preferred embodiment that the Examiner is relying upon (see *Examiner's Answer*, page 10, last two lines) to provide that the membrane materials comprise a support in which catalysts are deposited upon by quoting *Deckman* col. 3 lines 5-17, which includes on lines 6-9 the disclosure of a catalyst (41, 48) being deposited on the surface of a membrane, i.e., on porous support (42) as shown in *Deckman* FIG. 1.

“... using a catalyst that is contiguous with, or deposited on at least a portion of the membrane 4. *In one embodiment, a reforming catalyst is deposited onto or into a portion of the surface of the membrane. FIG. 1 shows a catalyst (41, 48) deposited onto the surface of the membrane.* Examples of materials that are suitable as reforming catalysts include noble metals and noble metal oxides such as Platinum, Ruthenium, and oxides thereof, transition metals and transition metal oxides and generally elements or oxides of group VIII metals as well as Ag, Ce, Cu, La, Mo, Mg, Sn, Ti, Y and Zn, or combinations thereof. Preferred catalyst systems include Ni, NiO, Rh, Pt and combinations thereof. These materials may be deposited or coated on the membrane surface or incorporated into the catalyst surface by means known in the art.”
(Deckman col. 3, lines 5-17, emphasis added in italic).

The Examiner appears to rely in fact on the same preferred embodiment of a catalyst supported on a hydrogen selective membrane as a basis for a rejection, but yet rebuts the Appellants' arguments based on the specifics of the same fact. If one contends that a hydrogen selective membrane can contain *in some embodiments* a material acting as a support for a catalyst, then in the context of this embodiment, *Deckman* has provided which ones of the various materials listed in *Deckman* col. 3 lines 50-55 can function suitably as a support. The selection in the membrane composition of the support materials by *Deckman* appears to be based on desirable properties that *Deckman* finds prerequisite for functioning as a porous support (see *Deckman*, col. 4 lines 20-33). Perovskites and hexaaluminates however are NOT envisioned as being suitable materials for the support (42 in FIG. 1) in this embodiment of *Deckman*. Rather, perovskites or hexaaluminates can form the thin permselective layer (43 in FIG. 1) for the selective permeation of hydrogen. The selection in the membrane composition of these materials by *Deckman* appears to be based on some hydrogen permeance range (*Deckman*, col 3 lines 47-50).

Thus, Appellants submit that an artisan reading *Deckman* as a whole would NOT reasonably be taught that the support material in *Deckman* either in the support for the hydrogen combustion catalyst or in the catalyst support for the hydrogen membrane may comprise the combination of alumina (in alpha and /or theta forms), a rare earth hexaaluminate and a rare earth aluminate perovskite.

In reality, it seems dubious (as Appellants have previously argued in *Appeal Brief*, page 19 lines 12-20) that an artisan reading such reference would be hard-pressed to find and expend this much time in its interpretation to extract such clear and unambiguous teaching. It seems that

the Examiner's attempts to show the contrary consists of taking statements from *Deckman* out of context and of providing a distorted meaning that one having ordinary skill in the art having no knowledge of the present application or to anyone else who can read the *Deckman*'s reference with understanding would not infer.

Thus, Appellants reiterate the argument that the reliance on *Deckman* for providing the combination of alumina (in an alpha form, a theta form, or both), a rare earth hexaaluminate and a rare earth aluminate perovskite in a catalyst support is feeble. Because *Deckman* fails to unequivocally disclose such combination in a catalyst support and further because *Deckman* is solely relied upon to provide this limitation, the combination of *McCarty* with *Deckman* and *Yamashita* does not provide all of the elements of the claims under appeal.

While Appellants have explained in great detail on how the Examiner erred particularly in the interpretation of the teachings of *Deckman* and the combination of *McCarty* with *Deckman*, it seems unlikely that the artisan would dissect such references with the minutiae of interpretation on which the Examiner's rejections are based.

The Board should carefully consider whether a person having ordinary skill would sort through these subtle statements and come to the conclusion that, indeed, the three components in a common catalyst support as recited in the claimed invention are present in the *Deckman* reference. As to the answer *whether the disclosure in McCarty in combination with the tenuous disclosure of Deckman is really sufficient to clearly and convincingly provide the objective evidence that Appellants' catalyst support was indeed already present or suggested by the prior art*, Appellants think clearly not.

As for the intimate mixture of the alumina phase and the rare earth aluminate with high molar ratio as recited in Claim 8, the Examiner has relied on *Yamashita* which is said to "*teach an intimate mixing of aluminum and lanthanum (Yamashita col. 7, lines 35-38)*" – see *Examiner's Answer*, page 8 lines 5-7. Appellants however submit that an intimate mixing of the atomic structures Al (aluminum) and La (lanthanum) does not teach an intimate mixture of the following *molecular* structures: Al_2O_3 (alumina phase) and $\text{Al}_x\text{Ln}_y\text{O}_z$ with $\text{Al}:\text{Ln} = x/y =$ being between 11:1 and 14:1 (rare earth aluminate with high molar ratio). Without an explanation from the Examiner on how he achieved such interpretation from the reading of *Yamashita*, col. 7, lines 35-38, Appellants contend that an artisan reading this statement from *Yamashita* would not reach

such conclusion, and that the basis for rejecting Claim 8 is unsupported by *Yamashita's* disclosure.

For the foregoing reasons and those previously stated in the *Appeal Brief* (herein incorporated in this reply), the rejections based on 103(a) are not *prima facie*.

**NONE OF THE REFERENCES CITED BY THE EXAMINER PROVIDE GUIDANCE
FOR COMBINING THE THREE COMPONENTS ON THE CATALYST SUPPORT**

Another pivotal question for the Board to consider is whether the Examiner has provided a reasonable rationale to support the motivation for the alteration of the prior art to arrive to the claimed invention. That is to say, the question that needs to be answered is *whether the artisan armed with his/her ordinary skill and creativity, after reading these cited references, would be guided to construct a variation of McCarty's support and catalyst as suggested by the Examiner to arrive to the claimed invention with a reasonable expectation of success?* Appellants think clearly not, especially when *McCarty* cautions the artisan of the non-trivial task in creating successful combustion catalysts. *McCarty* has precisely laid out catalyst compositions which *McCarty* forecasts to be successful in combustion reactions, but these successful catalyst compositions from *McCarty* do not include the combinations of the three materials in the catalyst support as recited in the Appellants' claims.

In rebutting Appellants' arguments concerning the teaching away from *McCarty*, the Examiner states (*Examiner's Answer*, page 12 lines 19-21 & page 13 lines 1-5) that even though *McCarty* indeed teaches that formulating combustion catalysts is difficult, it is not a teaching away from the claimed invention, but rather it is a caution that is overcome by the teachings of *Deckman*.

However, Appellants believe that in the context of the nonobviousness determination, a reference (such as *McCarty*) may be said to teach away when a person having ordinary skill, upon reading the reference, would be led in a direction divergent from the path that was taken by an applicant. *McCarty* teaches a layered catalyst formulation which comprises a single material for supporting a material. *McCarty* thus leads the artisan to the use of a single material as a support, which is in a direction divergent from the path that was taken by the Appellants, that is to say, the use of a combination of three specific materials in a support.

Appellants contend that the Examiner has not provided adequate reasons for why an artisan would be motivated in using a combination of materials as allegedly taught by *Deckman* (alumina, perovskites, and hexaaluminates) and using an alpha-alumina content of less than 20% as allegedly taught by *Yamashita* into *McCarty*'s catalyst support. The sole justification of the proposed modification of *McCarty* with *Deckman* offered by the Examiner is that "... it would have been obvious to one of ordinary skill in the art to provide a support comprising a hexaaluminate and a perovskite structure in *McCarty* because *McCarty* teaches these supports individually and it is known in the art to combine hexaaluminates and perovskites in supports (col. 6, lines 24-37) as taught by *Deckman*" (see *Final Office Action* page 5 lines 18-21; *Examiner's Answer* Page 5 lines 11-12). The sole justification of the motivation of the proposed modification of *McCarty* with *Yamashita* offered by the Examiner is that "... it would have been obvious to one of ordinary skill in the art to provide a support comprising alpha-alumina mixed with a lanthanum-stabilized alumina in an amount of 5-30% by weight (col. 7 lines 15-20) in *McCarty* because it is well known to do so in a substantially high temperature similar support as taught by *Yamashita et al*" (see *Final Office Action*, page 6 lines 5-8; *Examiner's Answer*, page 5 lines 17-20).

In another section of the *Examiner's Answer* (page 12 lines 19-21), the Examiner seems to indicate that, because *McCarty*'s and *Deckman*'s disclosures are drawn to catalyst compositions, the artisan reading these references would be prompted to substitute a part from *McCarty*'s support with a part of *Deckman*'s support. Appellants have previously stated (Appeal Brief in the sentence bridging pages 18 and 19) that *Deckman* does not offer any guidance on the selection of the combination of alpha-alumina and/or theta-alumina, a rare earth hexaaluminate and a rare earth perovskite from the generic list of materials suitable for the membrane provided in *Deckman*, col. 3, lines 50-53. Appellants further add that *Deckman* does not offer any guidance on the selection of the combination of materials from the generic list of support materials provided in *Deckman*, col. 4, lines 27-30.

Given the teachings of *McCarty* concerning the specific roadmap to follow to achieve successful catalysts, the Examiner has not fairly explained how and where *McCarty* furnishes direction or motivation to pluck the combination of three specific materials (a rare earth hexaaluminate, a rare earth aluminate perovskite, alumina in alpha and/or theta forms) from among the generic materials (hexaaluminates, perovskites, alumina) disclosed by *Deckman* in

col. 3, lines 50-55. In particular, the Examiner does not attempt to point out how the proposed modification of *McCarty*'s support and supported catalyst would have satisfied a reasonable expectation of a successful combustion catalyst.

Even though the Examiner has acknowledged that "one having ordinary skill in the art would recognize that the addition of rare earth aluminate and hexa-aluminate would change the properties of the support" (see *Examiner's Answer*, Page 13 lines 20-22), yet the Examiner fails to explain how this change in property in a support will yield to a reasonable expectation of creating a successful support and a successful supported catalyst according to *McCarty*'s teachings.

With respect to the addition of alpha-alumina as a component of the support, Appellants reiterate that there is no disclosure or suggestion from *McCarty* to use alpha-alumina in the support. The Examiner has rebutted Appellants' assertion (*Examiner's Answer*, page 13, lines 9-10) by stating that *McCarty* does propose that the alumina can be a candidate for a support material in col. 5 lines 1-29. However, contrary to the Examiner's statement, Table 1 in *McCarty* col. 5 lines 1-29 lists La- or Ca-stabilized gamma-alumina (which is a metastable form of alumina) as a suitable material for a support, but it does not point specifically to the densest structure of alumina which is alpha-alumina.

The Examiner has attempted to provide a reason on why an artisan would modify *McCarty*'s support by adding alpha-alumina as a component to the catalyst support. In rebutting Appellants' assertion of lack of motivation (see *Appeal Brief*, page 23 line 18 to page 25 line 14), the Examiner states that an artisan "*would recognize that alpha-alumina is added to the support to provide for dispersion of the catalyst based on the desired properties of the end product. This reasoning does not teach away from McCarty because, although alpha-alumina is used in the barrier layer, one would look to the desired properties of the end product and in that instant case it is well known to use alpha-alumina in a catalytic support to aid with catalytic dispersion*" (see *Examiner's Answer*, page 13 lines 10-15).

Appellants do not dispute that the support of *McCarty* should provide dispersion of the catalytic ingredient since it is taught in *McCarty* col. 7, lines 44-47 & col. 3, lines 25-26. However, *McCarty* is not looking at alpha-alumina in the support composition to help the dispersion of the catalytic layer, that is to say, to help increase the reaction rate, but *rather*

intends to use alpha-alumina in a diffusion barrier layer *over* the catalytic ingredient to help decrease the reaction rate by placing a restriction on the convective diffusion rate of natural gas (*McCarty*, col. 2, lines 37-41), in order to moderate the catalyst wall temperature below the very high adiabatic temperature to prevent overheating of the catalyst (*McCarty*, col. 10, lines 27-38).

Although it is acknowledged that alpha-alumina may be used in a catalyst support (for example a Pd catalyst supported on alpha-alumina as provided by *Yamashita* in col. 11, lines 15 & 51-52), alpha-alumina is generally a poor platform to provide catalytic metal dispersion since its surface area is around 1-2 m²/g. As evidence, the failure of *Yamashita*'s catalyst to ignite a reactant mixture in a methane combustion test in the same process that *McCarty* is a sign to the artisan of a poorly dispersed metallic component in the catalyst. Moreover, most of the individual materials listed in *McCarty* Col. 5 lines 1-29 for suitable support (e.g., La hexaaluminate; Ba Hexaaluminate; La- or Ba-stabilized gamma-alumina) have a surface area greater than that of alpha-alumina, thus providing a better platform to disperse a catalytic ingredient. As such, it seems doubtful that the artisan would look at adding alpha-alumina to the catalyst support composition when the suitable support materials listed by *McCarty* can support a greater dispersion of a catalytic ingredient than alpha-alumina can.

In sum, Appellants believe that, in lieu of considering the claimed invention as a whole, the examination was carried out by the dissection of the Appellants' claims, especially the support compositions recited in Claims 1, 40 and 86, into discrete elements and by the analysis of each element in isolation.

Ultimately, what has to be recognized is that Appellants are entitled to a patent unless a *prima facie* case of patentability is clearly and objectively presented in the *Final Office Action*. The foregoing points regarding the teaching of *Deckman*, or more precisely the lack thereof, and the teaching away from *McCarty*'s modification found in *McCarty*'s own disclosure clearly do not support a *prima facie* case of obviousness.

For the foregoing reasons and those previously stated in the *Appeal Brief* (herein incorporated in this reply), the rejections of on Claims 1-9, 11-13, 16-25, 40, 42-49, 76-77, 80-81 and 83-90 based on 103(a) thus cannot be sustained and should be reversed.

CONCLUSION

Appellants believe that what has been presented should be fully persuasive for allowability. Favorable action from the Board's earliest convenience is respectfully solicited.

Furthermore, based on MPEP §821.04, Appellants reiterate that withdrawn Claims 26-35, 37-39, 50-55, 57-58, 60-74 & 78-79 (not in consideration in this appeal) should be rejoined to the examination of the present application, for they contain the allowable subject matter contained in the examined independent Claims 1 and 40 and are free from 35 U.S.C. §101 or §112, first paragraph issues.

Appellants believe that no fee is due for this submission. If any fees be required or have been overpaid, please appropriately charge or credit those fees to **Deposit Account Number 16-1575 of ConocoPhillips Company**, and if necessary, please consider this submission as a petition for an additional extension of time and charge any necessary fees that may be due for this extension to the Deposit Account listed above.

Should there be any remaining issue which the Examiner believes would possibly be resolved by a conversation or should the Examiner would like to suggest critical language to put this application in condition for immediate allowance, the Examiner is invited to call the undersigned at (281) 293-4751 or any other practitioner of record.

Respectfully submitted,

CONOCOPHILLIPS COMPANY - IP LEGAL



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